RubberWorld

The technical service magazine for the rubber industry

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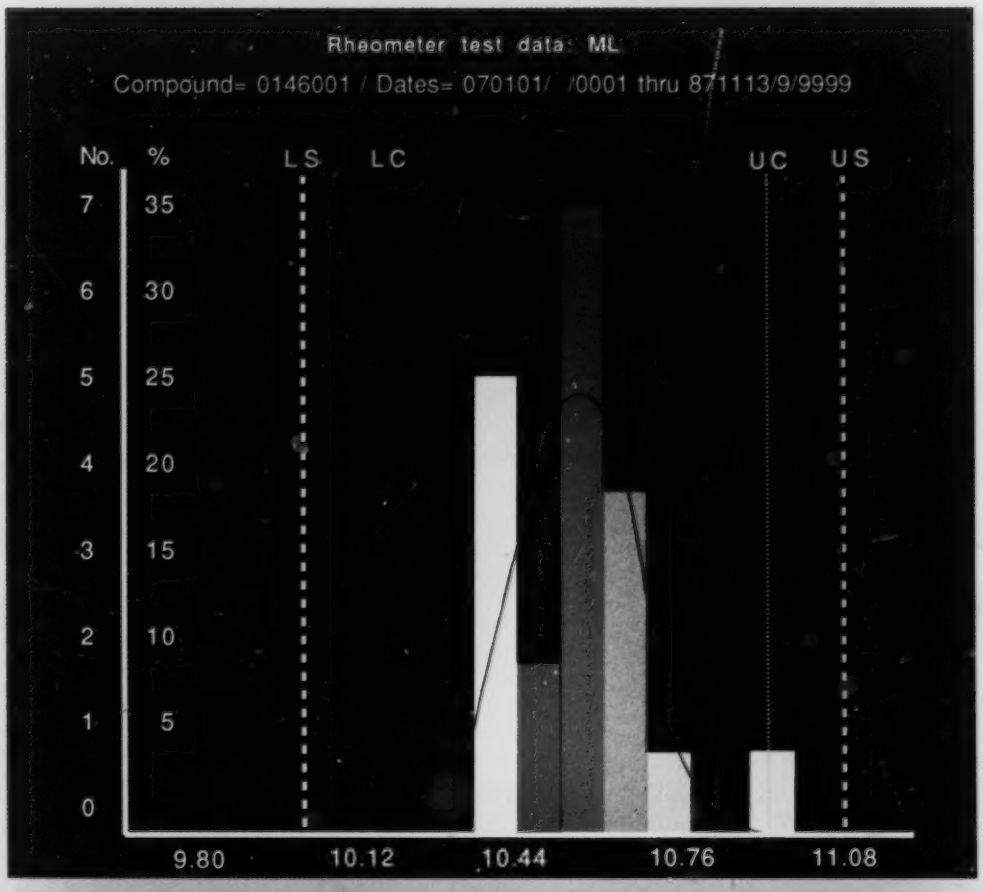
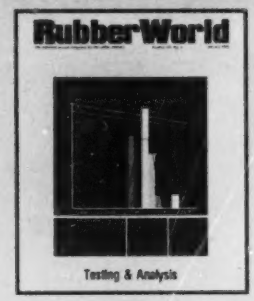


	Low	High	OK?
Specifications	10.00	11.10	
Limits: 6 sigma	10.16	10.95	Yes
Limits: 8 sigma	10.03	11.08	Yes
Out of spec: actual	0.00%	0.00%	
Out of spec: predicted	0.00%	0.00%	

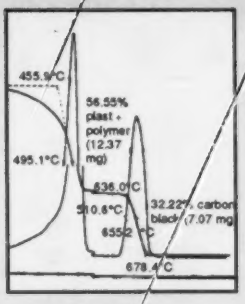
CPk: actual	1.39
CP: centered	1.41
PC: 6 sigma	71.04%
PC: 8 sigma	94.72%

Mean: actual	10.56
Mean: centered	10.55
Std. deviation	0.13
Samples	20
Skewness	0.89
Kurtosis	1.19

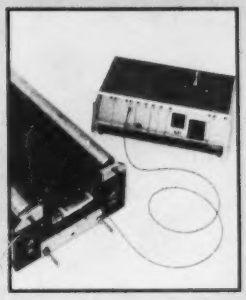
Testing & Analysis



Monsanto Rheologic software p. 14



New laboratory procedures p. 20



Techno Mart p. 45

5 Business Briefs
Acquisitions, expansions; contracts, licenses; financial statements; markets, news.

8 Tech Service: Not necessarily the new
by Jon Menough, contributing technical service editor. A look at rebuilding instrumentation and testing equipment used in the rubber industry.

12 Urethane Forum
This month's column features news items from the urethane industry.

14 RheoLogic software - a tool to assist in the SPC of rubber mixing
by Stephen Russo, Vernay Laboratories, and Patrick J. DiMauro and John I. Braver, Monsanto Instruments. The authors discuss how the addition of a RheoLogic package to the Monsanto oscillating disc rheometer has enabled Vernay Laboratories to move from having a standard piece of test equipment into having a valuable tool for improvement.

20 New laboratory procedures to evaluate the durability of roofing membranes
by Michael S. Farlling, Carlisle SynTec Systems. This article describes the features and advantages of using thermal analysis or thermo-analytical techniques to bridge the gap between test procedures for different polymeric membranes.

25 Independent testing laboratories directory
Directory of independent testing laboratories with a grid showing testing offered.

31 Instrumentation and test equipment suppliers
Directory of instrumentation and test equipment suppliers with a grid showing instrumentation offered.

38 Patent News
edited by Bob Samples, Akron Rubber Development

45 Techno Mart

Departments

4	Editorial	39	Meetings	50	Literature
42	Calendar	49	Jobs & People	52	Ad Index

Cover

Cover artwork, featuring a Monsanto ODR screen, recreated by Joan Colbert.

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Editorial

In these days of rapid technological advances it's hard to imagine many companies are giving much thought to what the rubber industry will be like in the year 2020. Manufacturing in space, interplanetary travel and developing the ocean floor may be the major markets for present day companies. Will there be significant technological innovations that will effect the make-up of the industry? What's the next step after radial tires? Will there be tires that never wear out? What if hydroplane technology eliminates the need for tires? Technological breakthroughs are not planned. When they occur you must be versatile enough to take advantage. But in an organized society, many things that affect business are planned. The year 2020 is 32 years away. The Interstate Highway System in the U.S. was initiated 32 years ago. And although those that took part in its development could hardly foresee what travel would be like in 1988, they laid the groundwork for a transportation system that has had some real benefits for the rubber industry.

And now a couple of groups are looking toward 2020 to develop a consensus for a plan to meet the surface transportation demands of the early part of the 21st century. The American Association of State Highway and Transportation Officials in cooperation with the Highway Users Federation are conducting a program called "Transportation 2020" to help chart a course of action and is seeking input throughout the country. It seems imperative to our industry that we make sure that continued development and maintenance of the interstate highway system becomes a top priority with the federal government. Presently there is no future transportation policy other than to complete the Interstate Highway System. The current Surface Transportation Act expires in 1991. If you think there's plenty of time, consider that the federal government identified the need for a highway system linking the states back in 1939, 17 years later the Interstate System was designed and the financing mechanism put into place.

The highway system is but one option in transporting either people or goods. Air travel, railroads and waterways are other choices. The present highway system has made traveling by car or shipping by truck the preference of many. Highway travel has tripled since the IHS began in 1956. Travel has increased at more than 4% per year during this decade and grew by 17% between 1983 and 1987. Yet, Federal expenditures on highways in real terms are 13% lower now than in 1983. At present growth rates, highway travel will increase 60% nationally by the turn of the century and yet there is no plan to deal with this growth. The two aforementioned groups have seen the need and are developing a plan that they are going to submit to Congress in early 1989. They are looking for input and considering the major role ground transportation plays in this industry, input should come from many within the industry. A good portion of the growth in the rubber industry is dependent on the continued and increasing use of transportation on wheels. The industry should seriously take part in making sure a first rate highway system is maintained and expanded.

Don R. Smith
Editor

RubberWorld

EDITORIAL STAFF

Don R. Smith editor
Dr. Walter C. Warner technical editor
Jill Wrigley managing editor
Julie Wagner associate editor
Joan Colbert composition editor
Jon Menough contributing technical service editor

BUSINESS STAFF

Job Lippincott publisher
John W. Peto v.p. sales
Regina Hill adv. production manager
Jane McBee assistant adv. production manager

EDITORIAL OFFICES

P.O. Box 5485
1867 W. Market Street
Akron, Ohio 44313
(216) 864-2122
Telex: 297690 RWMAG UR

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Business Briefs

Tire for sale to Japanese car manufacturers, and by General Tire for Toyo and Yokohama for the North American market.

Mobay Corp. will supply an advanced polyurethane elastomeric system to **Toyota, U.S.A.** for use in molding front and rear bumper fascias for the Camry 4-door passenger sedans.

PPG Industries and **Sudamtex de Venezuela** formed a joint venture to manufacture continuous strand fiber glass in Barcelona, Venezuela. The agreement involves purchase by the joint venture of the fiber glass operations of a Sudamtex subsidiary.

Smaltiriva, S.p.A. headquartered near Milan, Italy has reached a licensing agreement to supply **Plasma Coatings, Inc.** products throughout Europe.

BFGoodrich Co.'s Aerospace and Defense Division has been selected by the United States Air Force to develop and supply two new tire designs for the C-17, a new cargo plane being built by McDonnell Douglas to complement the C-5.

RMA rubber report through October (figures expressed in metric tons)

	YTD '87	YTD '86	% change
Total new rubber			
New rubber available	2,705,048	2,562,161	5.58
Imports	900,697	869,668	3.57
Exports	414,854	327,697	26.60
Apparent consumption	2,321,609	2,235,349	3.86
Total natural rubber			
Imports	666,581	658,626	1.21
Exports	29,782	31,804	-6.36
Apparent consumption	645,820	641,601	.66
% total new rubber	27.81	28.70	
Total synthetic rubber			
Production	1,804,351	1,692,493	6.61
Imports	234,116	211,042	10.93
Exports	385,072	295,893	30.14
Apparent consumption	1,675,789	1,593,747	5.15
Total SBR			
Production	699,464	649,397	7.71
Imports	67,959	81,768	-16.89
Exports	142,130	90,539	56.98
Apparent consumption	646,226	648,311	-.32
Total nitrile			
Production	56,086	51,176	9.59
Imports	13,086	10,136	29.10
Exports	11,126	9,902	12.36
Apparent consumption	56,005	51,668	8.39
Polybutadiene			
Production	306,063	289,038	5.89
Imports	68,466	46,398	47.56
Exports	51,036	17,565	190.56
Apparent consumption	328,060	305,838	7.27
Ethylene-propylene			
Production	210,776	198,190	6.35
Imports	5,517	4,133	33.49
Exports	38,557	38,246	.81
Apparent consumption	172,700	157,840	9.41
Butyl, polychloroprene, polyisoprene, silicone and other synthetic elastomers			
Production	531,962	504,692	5.40
Imports	79,088	68,607	15.28
Exports	142,223	139,641	1.85
Apparent consumption	472,797	430,090	9.93

Financial Statements

BASF Corp. reported third quarter earnings of $1.1 billion on sales of $16.5 billion.

Degussa Groups turnover for the 1986/87 year was 3,802DM for the chemical sector

The Firestone Tire & Rubber Co. reported net income of $145 million on sales of $3.9 billion for fiscal 1987.

Smith & Nephew announced earnings of £74.9 million on sales of £418.5 million for the third quarter.

RMA tire report through September (figures in thousands of units)

Passenger tires	YTD '87	YTD '86	% change
Shipments			
original equipment	39,930	41,395	-3.54
radial	33,888	34,818	-2.67
replacement	111,581	107,643	3.66
radial	99,876	92,766	7.66
export	4,244	2,933	44.70
radial	3,703	2,247	64.80
total	155,755	151,971	2.49
radial	137,467	129,831	5.88
Production	124,624	118,797	4.91
radial	109,402	100,394	8.97
Truck & bus tires			
Shipments			
original equipment	5,906	5,236	12.80
radial	4,102	3,486	17.67
replacement	25,515	23,797	7.22
radial	13,712	11,341	20.91
export	1,475	989	49.14
radial	1,048	696	50.57
total	32,896	30,022	9.57
radial	18,862	15,523	21.51
Production	26,514	22,985	15.35
radial	15,208	11,181	34.41